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CDP
Cooperative Development
Project



SEMI-ANNUAL REPORT

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Acronyms and Abbreviations

ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
CDP	Cooperative Development Program
CLARITY	Cooperative Law and Regulation Initiative
FG	Focus Group
FGD	Focus Group Discussion
HH	Household
KSH	Kenyan Shilling
METRICS	Measurements for Tracking Indicators of Cooperative Success
PM2	Performance Measurement and Management System
PMP	Performance Management Plan
PPP	Purchasing Power Parity
TANGO	Technical Assistance to NGOs International
UCCCU	Uganda Crane Creameries Cooperative Union
USAID	United States Agency for International Development
USD	United States Dollar
USH	Ugandan Shilling

CDP SEMI-ANNUAL REPORT

The following semi-annual report will detail the activities to date, challenges faced and other key issues encountered in the previous six months of the project. The primary activity during this reporting period was a rigorous data collection activity, described in detail below.

I. PROJECT SUMMARY

Land O'Lakes' Cooperative Development Project was designed to address issues of increasing global demand for milk. Increased demand has spurred domestic and international competition for market share, requiring cooperatives to achieve scale and engender member loyalty to compete effectively.

Development Challenge

The production and marketing of milk generates income and employment opportunities for millions worldwide and provides an important source of nutrition to women, children, and families/households. Dairy cooperatives in both developed and developing countries play a critical role in moving milk from farms to consumer markets. However, increasing global consumer demand for milk and dairy products is attracting both domestic and international competition for milk producers in dairy producing countries. This is especially seen in East African countries, which have a rich history and culture of keeping livestock and consuming milk. Dairy cooperatives not only have to compete with private sector processors, informal sector traders, and vendors in the marketplace, but they also compete with these same businesses for farmers' milk; there is competition on the supply and demand side. In response to this competition, a number of dairy cooperatives in developing countries have succeeded in horizontally and/or vertically integrating their operations to achieve scale, increase their competitive position in the marketplace, maximize returns to members, and engender member loyalty.

The CDP project is testing the development hypothesis that dairy cooperatives that achieve and leverage economies of scale through horizontal and/or vertical integration increase their commercial viability and competitiveness, and provide greater socio-economic returns to farmer-members, especially women farmers.

Intended Results

Our work will contribute directly to the achievement of CDP's Project Objective: *Increased access to self-reliant cooperative enterprises that meet the evolving needs of their members and contribute to improved quality of life for members, communities, and nations.* Land O'Lakes seeks to assist dairy cooperatives in East Africa to respond to evolving market conditions and increasing competition by achieving and sustaining economies of scale through horizontal and vertical integration. Achieving this objective has the added benefit of increasing the availability of highly nutritious milk and dairy products for consumers in countries with high rates of malnutrition.

The project has two primary indicators, one for cooperatives and one for cooperative members. The **primary indicator** to measure progress benefiting **cooperatives** is *change in sales revenue for participating cooperatives*. Our target is:

- **Revenues of participating integrated cooperatives increased by 25 percent**
(from US\$5.3m to US\$6.6m in Kenya; from US\$5.9m to US\$7.3m in Uganda)

Scale and integration will enable cooperatives to become and remain competitive in the marketplace and retain member loyalty by increasing socio-economic returns to members, particularly women. Our **primary indicator** and target for tracking benefits to **cooperative members** of scale and integration is:

- **Household net income of integrated cooperative members increased by 30 percent**
(sex disaggregated by female-headed households)

The Performance Management Plan (PMP), which outlines the indicators in great detail will be submitted by August 31, 2011.

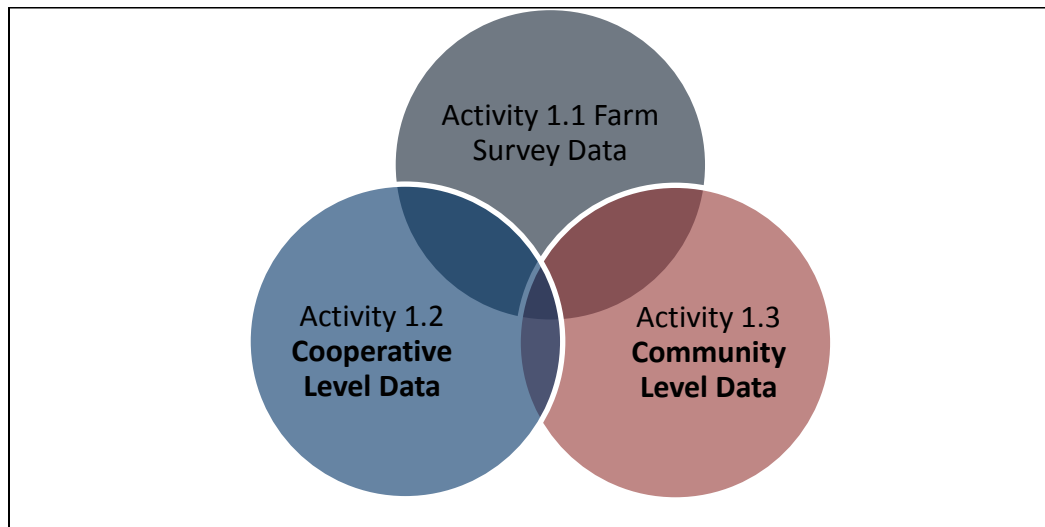


LIMURU FRESH: a finished product of one of our business partners. Photo by David Neubert.

Progress in Activities by Project Phase

The project activities to date have primarily contributed to knowledge generation. This provides the opportunity to listen and learn broadly about the dairy farmers, and the choices they make about marketing, production, and management of their business. We also learned from the dairying community about their important and trusted relationships in local institutions. An important element of the knowledge generation activity is ensuring the cooperative partners have confidence that we understand and record the information from them correctly. The project conducted data validation workshops, validated the data collected, and developed an initial action plan with each of the business partners.

Figure 1. Levels of Data Gathered



II. Phase One: Knowledge Generation

Knowledge Generation activities outlined below include:

- Activity 1.1: Conduct farm-level assessment
- Activity 1.2: Conduct cooperative-level analyses (Analytics team)
- Activity 1.3: Conduct community-level qualitative survey (TANGO and others)
- Activity 1.4: Analyze and validate findings

The knowledge generation phase focused its data collection on four participating cooperatives (apex organizations) in Kenya and Uganda. Each of the four cooperatives were chosen as partners to the project because they had successfully undergone horizontal integration (group milk bulking to reduce costs and increase market power) and had begun, or significantly invested in, vertical integration (value addition and/or processing of milk).

Project Partners

Following is a description of each of the four participating cooperatives.

Lari Dairy Alliance, Ltd.

Lari, a federated dairy cooperative located 25 miles north of Nairobi, was formed in 2001. Lari, which markets its milk products under the brand name SUNDALE, has 5 member primary cooperatives and accepts milk from four non-member primary cooperatives. Since its inception Lari has had 6,040 farmer members, with 1,200 currently active. Lari raised the equity to invest in its 52,000 liters per day processing facility through a combination of primary cooperative contributions, farmer contributions and financing. Currently Lari collects, an average of 20,000 liters of milk per day, less than 40% of the plants processing capacity.

Limuru Dairy Farmers Cooperative Society, Ltd.

Limuru, a 49 year old a federated dairy cooperative, is located near Lari Dairy Alliance just outside of Nairobi. Limuru collects its milk from a single primary member cooperative which has 9,700 members, of which 6,000 members are currently active. The processing facility, Lari Milk Processors (LMP), markets its milk under the name LIMURU FRESH and is a wholly owned subsidiary, with Limuru Dairy Farmers Cooperative owning 52% and Limuru's farmer members owning 48%. Limuru currently collects an average of 30,000 liters of milk per day, 20% of which comes from non-member cooperatives, with the processing facility operating at 43% of its 70,000 liters per day capacity.

Meru Central Dairy Cooperative Union, Ltd.

Meru Central Dairy Cooperative Union is located near Mt. Kenya, 6 hours from Nairobi. Originally formed in 1967 as Meru Central Farmers' Cooperative, the organization became insolvent and was restructured in 2005 as a federated cooperative under its current name. Meru has 17 primary member cooperatives, 13 of which are active. Each member cooperative has between one and two thousand members, resulting in approximately 20,000 farmer members for Meru Central Dairy Cooperative. The processing plant, originally built in 1982 with equity capital from dairy and coffee returns, has a capacity of 100,000 liters per day. An average of 20,000 liters per day is currently being met by the farmer members. Meru currently has about two percent of the national milk market with its brand name MT KENYA. Nearly 60% of its milk products are being sold in Nairobi.

UCCCU (Uganda Crane Creameries Cooperative Union)

UCCCU, located 170 miles from Kampala in Mbarara, Uganda, is composed of eight member unions that bring together 103 primary cooperative societies throughout Southwest Uganda. UCCCU was formed in 2005 to create a milk marketing and processing system to defend against the dominant buyer in the region, Sameer. Currently there are 15,000 farmer members contributing milk to UCCCU. This milk is bulked at the constituent union level and then sold to Sameer. It is estimated that the milk production capacity across the eight UCCCU constituent unions is potentially 200,000 liters per day. UCCCU members have been contributing capital towards investment in a processing facility, and to date have generated 652,000 USD towards the construction of the facility. The facility is nearly complete, but still lacks processing equipment.

Timeline of Activities

The following table outlines dates and participants for the activities described below.

Table 1. Timeline

Date	Description	Participants	Location	Activity
October 2010	Cooperative analytics team kick-off meeting	Cooperative team, Brad Buck, Rebecca Savoie, Jane Gindin	Washington, DC	1.2
November 2010	Introducing project to cooperative partners	Brad Buck, Rebecca Savoie	Kenya, Uganda	1.1, 1.2, 1.3
November 2010	Meeting with TANGO International	Brad Buck, Rebecca Savoie, TANGO team	Kenya, Uganda	1.1, 1.3
December 2010	Various meetings with Cooperative team and TANGO	Rebecca Savoie, consulting teams	Various	1.1, 1.2
January 2011	Cooperative-level assessment	Cooperative team, Rebecca Savoie, CDP team (Land O'Lakes staff)	Kenya, Uganda	1.2
January-February 2011	Farm-level assessment	TANGO team and local partners with support from Land O'Lakes	Kenya, Uganda	1.1
February 2011	Draft reports due from Cooperative assessment team and TANGO	Cooperative team, TANGO team, Land O'Lakes staff	Various	1.1, 1.2
March 2011	Review of data	Cooperative team, TANGO team, Land O'Lakes staff	Minnesota	1.1, 1.2, 1.3
March-April 2011	Community-level assessment	TANGO, Land O'Lakes staff	Kenya, Uganda	1.3
May 2011	Presentation of data to cooperative business partners	Land O'Lakes staff	Kenya, Uganda	1.1, 1.2, 1.3
June 2011	Data validation	Consultants from cooperative assessment team, TANGO, Land O'Lakes staff	Kenya (Uganda business partners traveled to Kenya)	1.1, 1.2, 1.3, and 1.4 preliminary analysis

Activity 1.1: Conduct Farm-Level Assessment

An important element of the Land O'Lakes Cooperative Development Project is to collect household-level data that is sufficiently rigorous to describe with statistical significance the variance within the dairy community. This farm level data, when joined together with data sets from the community and cooperative level (Activities 1.2 and 1.3), can be used to develop diagnostic tools that will be tested, improved and disseminated throughout the course of this project. These tools will help dairy cooperatives understand those critical factors required for successful vertical and/or horizontal integration.



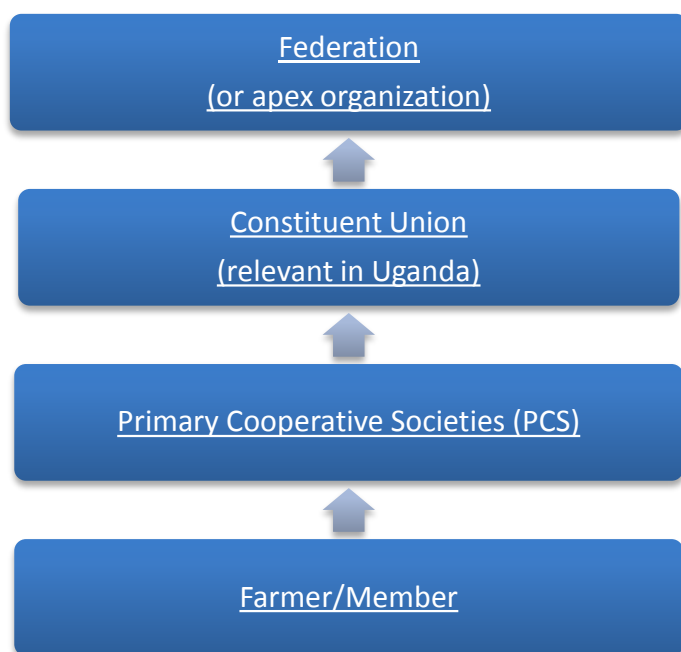
CDP cooperative analytics team in January 2011. Photo by Isaac Walton Center staff.

Sampling Strategy

The CDP project staff determined that the quantitative survey of dairy farmers should be undertaken at three dairy federations that are working with the project: Lari Alliance and Meru Central Cooperative Union in Kenya, and Uganda Crane Creameries Cooperative Union (UCCCU) in Uganda. It was determined that these three federations would provide a comprehensive assessment of the conditions of the federations in the two countries. Limuru was not included in the quantitative household survey as the data from Lari would sufficiently overlap. The questionnaire was developed with information about dairy farmers

from a variety of sources including the questionnaire from the mid-term evaluation of the Bill & Melinda Gates Foundation-funded East Africa Dairy Development Project working in the dairy sector¹, and the USAID-funded Kenya Dairy Sector Competitiveness Project (KDSCP).

Figure 2: East African Dairy Cooperative Structure



The sample size calculation was developed using the formula in Figure 3 for comparing the differences in means across two different samples.

¹ Additional information on the EADD project can be found online at <http://eadairy.wordpress.com/>

Figure 3. Sample Size Calculation Formula

Sample Size Calculation Formula	
$n = D [(Z_{\alpha} + Z_{\beta})^2 * (sd_1^2 + sd_2^2) / (X_2 - X_1)^2]$	
KEY:	
n	required minimum sample size per survey round or comparison group
D	design effect
X₁	the estimated mean of an indicator in the first survey round or comparison group
X₂	the expected mean of the indicator in a later survey round, or in a different comparison group. (X ₂ – X ₁) is the magnitude of change or differences across comparison groups it is desired to be able to predict.
sd₁, sd₂	the expected standard deviations of the indicators in the respective survey rounds, or comparison groups.
Z_α	the Z-score corresponding to the degree of confidence with which it is desired to be able to conclude that an observed change of size (X ₂ – X ₁) would not have occurred by chance (α - the level of statistical significance)
Z_β	the z-score corresponding to the degree of confidence with which it is desired to be certain of detecting a change of size (X ₂ – X ₁) if one actually occurred (β - statistical power).

The formula was computed to be able to detect a 32 percent change in the mean value of household income from dairy. Based on information from other surveys conducted on dairy farmers by Land O'Lakes in the region, and on the basis of results from the survey of dairy farmers conducted by TANGO for the East Africa Dairy Development project in Kenya, Uganda, and Rwanda, the average coefficient of variation (standard deviation/mean) of dairy income in these surveys is approximately 1.4. We assume a 32 percent difference in the mean, and standard deviation, between group 1 and group 2. Following Magnani², the design effect is assumed to have a value of 2, and the Z-scores are chosen for a significance level of 0.95 and a power of 0.80, to give the following values for the parameters of the equation.

² Mangani, Robert. *Sampling Guide, FANTA, 1997.*

Values for the parameters of the equation

$$\begin{aligned}D &= 2.0 \\X_1 &= 1.0 \\X_1 &= 1.32 \\sd_1 &= 1.40 \\sd_2 &= 1.848 \\Z_\alpha &= 1.645 \\Z_\beta &= 0.840\end{aligned}$$

Applying these values to the formula gives a value for n of 648.29, so the desired minimum sample size for comparison group is 650. The total number of households per dairy federation is 1,300 (650 coop members and 650 non-members) therefore the minimum sample for Kenya, with two dairy federations, is 2,600 (1,300 for Lari Alliance and 1,300 for Meru Central) and for Uganda, one dairy federation, is 1,300 (1,300 for UCCCU), to give a total sample for the two countries of 3,900 farmer households.

In Uganda, where there are a large number of primary societies affiliated with UCCCU, a two-stage sampling process was followed to select individual farming households. The first stage was to select a total of 44 primary societies using probability proportional to size (PPS) methodology. Then in each of the selected primary societies, a total of 18 members of the primary society and 18 non-members within the milkshed of the selected primary society were interviewed. (In the PPS process, one large primary society was selected twice, so twice as many households were interviewed in this society.) The members were selected randomly from the lists of all active members (those that had delivered milk to the cooperative within the last 6 months). The non-active members were chosen by the interviewers after they completed an interview with a member. From the selected member's homestead, the interviewer would follow a specified transect and skip over a specified number of households (the number depended on the settlement density pattern in each location), and screening questions were used to determine whether the households had dairy cows and were members of the local primary society. If the household had cows and was not a member of the primary society, the household would be interviewed as a non-member. This process was repeated after each interview of a member of the primary society. This process ensures that the selected non-members are within the milkshed of the selected primary society, so they could potentially be members if they wished.

In the federations of Lari Alliance and Meru Central in Kenya, a slightly different procedure was utilized. Because the number of cooperatives affiliated with these federations is much smaller, all of the affiliated cooperatives were included in the survey. The number of members selected from each cooperative was proportional to the total number of members in each cooperative. In the case of Kenya, the sample is in fact a simple (systematic) random sample, rather than a two-stage sample.

The following table shows the actual number of households which were interviewed in the survey, broken down by dairy federation and cooperative membership status.³

³ The cooperative analysis team outlined in Activity 1.2 used information from two of UCCCU's eight unions (Ntungamo and Bushenyi) due to the unavailability of UCCCU level cooperative data. There were not sufficient observations within the random household sample in Activity 1.1 to statistically identify differences between Ntungamo and Bushenyi unions. Therefore it was determined that 300 additional household surveys within Uganda (150 households across each constituent unions) would

Table 2. Number of Households Interviewed

Number of Households Interviewed			
	Total HH interviewed	Coop Membership	
		Non-Members	Members
Lari Alliance	1,366	674	692
Meru Central	1,354	649	705
UCCCU	1,315	640	675
Total sample	4,035	1,963	2,072

Activity 1.2: Conduct Cooperative-Level Analyses (Analytics Team)

The Cooperative Analysis team was mobilized in October 2010 to prepare to conduct in-country analytic work. The multi-disciplinary experts with a range of expertise, as summarized below:

- *Team leader* – Ms. Rebecca Savoie
- *Cooperative governance and management* – Dr. Michael Cook
- *Markets and Financing Analyst* – Mr. David Neubert
- *Policy/legal analyst* – Mr. Paul Christ
- *Dairy value-chain specialist* – Mr. Rashmi Nagar
- *Sociologist (gender, conflict)* – Dr. David O'Brien

The Cooperative Analysis team identified key factors that influenced, enabled and/or hindered the formation and development of integrated dairy cooperatives. It is important to learn what limits the formation of integrated cooperatives as well as to what factors lead to successful integration. These enabling environmental factors are summarized below.

Table 3. Enabling Environment Factors

Enabling Environment Factors
Leadership. The role of leaders in creating a vision, building consensus and championing efforts to form and develop integrated cooperatives. The role and impact of leadership from within, versus external leadership. Identification of key characteristics of effective or ineffective leadership.
The policy, legal, and regulatory enabling environment. Government cooperative law as an enabling or hindering factor in the formation of integrated cooperatives and in their ability to be competitive. The principles and scorecard of the CLARITY project will be integrated into the assessment methodology.
Milk production and collection potential. The extent to which the natural resource base and existing market infrastructure enables or hinders the formation of integrated cooperatives.
Transactional costs. The cost of procurement, transport, equipment, marketing, and distribution as an

increase the validity of results when analyzing data collected across each of the data collection activities.

enabling or inhibiting factor to the formation of integrated cooperatives.
Markets and competition. The role of competition (informal traders/vendors, as well as formal-sector private bulkers and processors) as an accelerator or decelerator for integrated cooperative formation.
Financing. The role of access to capital (debt or equity) from member equity, commercial banks, development banks, and even government and/or donors as an enabling or hindering factor in the formation and development of integrated cooperatives. The role and impact of subsidies (government, donor) will also be explored.
Socio-cultural. The impact/influence of conflict, gender, politics, and even HIV/AIDS on the formation and development of integrated cooperatives. The role of women as members and leaders within integrated cooperatives will be evaluated.
Technology and innovation. The role of technology (e.g. lower-cost processing equipment and packaging, milk analyzers, ICT systems, artificial insemination, etc.) as an enabler in the formation and development of integrated cooperatives.

Organizational Competencies

In addition to enabling environmental factors the Cooperative Analysis team identified key cooperative organizational competencies that, if developed and effectively managed, are likely to increase the ability of the cooperative to remain competitive in the marketplace and return significant value to its members. The evaluation of organizational competencies provides a forward-looking view of what skills (knowledge, systems, tools, and technologies) will be required to remain competitive within each cooperative's enabling environment.

Under the previous USAID-funded CDP program, Land O'Lakes had permission to customize the Organizational Capacity Assessment Tool developed by the Marguerite Casey Foundation and adapted it to define and evaluate key organizational competencies for *primary* dairy cooperatives.⁴ The renamed Performance Measurement and Management System (PM2) measures and tracks improvement in cooperative performance against five organizational competencies: **Leadership; Adaptive Capacity; Planning, Management and Information Systems; Operations; and Productivity and Financial Performance.** We feel these competencies will also have relevance to integrated dairy cooperatives.

Under the CDP program, Land O'Lakes will develop **six organizational competencies: Financing; Member Services; Environmental Sustainability; Gender Integration; Harnessing Innovation and Technology** (given the context of managing more complex, integrated dairy cooperatives). Based on Land O'Lakes own experience in the U.S. and overseas, and from critical insights gleaned from the White Revolution in India, it seemed important to include these additional competencies considering the challenges of working in countries affected by conflict or with challenging enabling environments.

The team plans to evaluate the extent to which these competencies have and/or are expected to influence the ability of cooperatives to increase revenue and profitability, maintain or grow market share, diversify their product range, increase productivity, manage internal and external sources of conflict, and retain and/or grow membership in a competitive marketplace.

⁴ http://www.caseygrants.org/pages/resources/resources_downloadassessment.asp

Table 4. Organizational Competencies

Organizational Competencies
Leadership. The extent to which cooperative leaders inspire, prioritize, make decisions, provide direction, foster/manage external relationships and innovate.
Adaptive capacity. The ability of the organization to monitor, assess, and to respond to internal and external changes.
Planning, management, and information systems. The ability of the organization to plan and ensure the effective and efficient use of organizational resources.
Operations. The capacity of the organization to implement key organizational and programmatic functions such as milk procurement, bulking, processing, marketing and distribution.
Productivity and financial performance. The ability of the cooperative to measure performance against a number of productivity and financial indicators.
Financing. The ability to generate and/or access internal (equity) and external (debt) financing.
Member services. The extent to which the cooperative provides and/or facilitates the provision of inputs and services to members.
Environmental sustainability. The stewardship and trusteeship capacity of leaders, managers, staff and members to manage and protect the community's natural resource base.
Gender integration. The extent to which leaders, management, staff, and members positively understand, value, and leverage gender roles within the cooperative.
Conflict management. The capacity of leadership and management to respond to and manage internal and external sources of conflict.
Harnessing innovation and technology. The ability of the cooperative to identify, evaluate and harness productivity- and profit-enhancing technologies.

The analytics team reviewed the areas of organizational competency, and their findings will be used to update the PM2 tool for application by the CDP field staff.

Activity 1.3: Conduct Community-Level Qualitative Survey (TANGO and others)

The qualitative study is meant to enhance understanding about local livelihood systems—the economic, socio-cultural, and political context—and the constraints and risks of dairy producer families living within this context that lead to food insecurity, vulnerability, and marginalization.

In March 2011, TANGO and the cooperative analytics team came together to identify gaps in data collection. The team concluded to design a set of qualitative instruments to capture social capital using the World Bank definitions of 'bridging' and 'bonding' looking at the trusted and important relationships in the community as they relate to dairy activities.

The qualitative field assessment included focus groups with purposefully selected⁵ sites within each cooperative milk collection area. Groups included members, non-members, men and women, small and large farmers (as defined by the communities themselves).

⁵ Focus group site locations were chosen to be representative of the primary cooperatives within each apex cooperative and to overlap with the quantitative household survey to allow for informed inferences in future analysis.

After a review of the data collected from the quantitative survey of dairy farmers (Activity 1.1) and the Cooperative Analytics team cooperative analysis (Activity 1.2) the CDP team met in Minneapolis to discuss gaps in the current data collection. The gaps were to be addressed with a community level, mixed methods, qualitative survey (Activity 1.3). The key areas the team identified for further data collection were:

1. General issue of “social capital”, particularly with regard to cooperatives’ engagement with members (and vice-versa).
2. Direction of causality between economic status and coop membership (are dairy farmers richer because they are members of cooperatives, or are they members of cooperatives because they are richer?)
3. What are important channels of information about new techniques for dairy farmers, and how do dairy farmers perceive cooperative as important and trusted source of useful information?
4. How do farmers get access to inputs?
5. What are important factors that determine dairy farmers’ decisions about marketing decisions (to whom should they sell their milk)?

The methodology developed to address these gaps included three focus group tools; focus groups discussions, Venn diagrams to capture trusted and important social relationships that relate to households and dairy and an income pie exercise for rainy and dry seasons. These community-level exercises captured information from over 600 participants, cooperative members and nonmembers, across all four geographical areas represented by the CDP partner cooperatives.



Venn diagram exercise: identifying trusted and important social institutions that impact dairy. Photo by Sugul Sutter.

Activity 1.4: Analyze and Validate Findings

The initial analysis was conducted and the findings for all three studies were presented to the cooperative partners in May 2011 in preparation for the validation workshop in June 2011.

Summary of Initial Analysis

Following is a summary of initial analysis of the three phases of data collection (Activities 1.1 – 1.3).

Focus group discussions (Activity 1.3) in the three dairy milksheds revealed a general perception by both Kenyan and Ugandan dairy farmers that the role of cows within their communities has changed dramatically over the last five years. Specifically, farmers characterized this change as a 'shift to commercialization', i.e., that cattle once played a more significant role as a status of wealth and prestige in their communities, providing households with milk for consumption, meat for family gatherings and ceremonies, and a source of blood for preparation of certain traditional foods, dowry and

"Cows are like our bank. We look at them as a source for everything – well-being, milk, school fees, and clothing."

"Now cattle are cast. If I wanted money just now, I can get it in less than 20 minutes because I have cows."

-UCCCU focus group

other socio-cultural needs. Today, cows are primarily viewed as a business venture.

Cows are seen as a source of cash from the sale of milk, the sale of calves and bulls, and from selling productive cows during times of financial stress (i.e., as a coping strategy). For women in particular, cows are seen as a source of income for household needs and educational fees, leading overall to “improved lifestyles” for women as they manage income from their cows. One respondent went so far as to suggest dairy farming is perceived as a “woman’s business.”

The overall current economic characteristics of dairy farmers interviewed during the farm level survey (Activity 1.1) are summarized in Statistical Tables 1, 2, and 3⁶. Among all the surveyed dairy-producing households in both Kenya and Uganda, the lowest per-capita income households make significantly less than all other income quartiles (Statistical Table 1). With a few exceptions, dairy farmers in the lowest per-capita income quartile make close to one-half what farmers in the next lowest income quartile make. In both Lari Alliance and Meru Central milksheds within Kenya, the median income per person for dairy farmers in the lowest income quartile is approximately USD 15 per person while the median income per person for dairy farmers in the highest income quartile is USD 159 and USD 139 per person, respectively.

“My cow is like my second husband because I rely on it financially for all my needs.”

–Lari Alliance focus group

In all three milksheds surveyed in Activity 1.1, farmers in the lowest per-capita income quartile have significantly fewer cows than do farmers in any other income quartile, though the differences are small in Kenya. In UCCCU, however, dairy farmers in the highest quartile reported more than double the average number of cows than did farmers in the lowest income quartile (47.5 and 14.7, respectively). In all three cooperative milksheds, income from dairy farming is of relatively more importance for lower income dairy farmers than for higher income levels, though the differences are not large.

Across the three cooperatives, significantly fewer farmers from the lowest income quartile belong to their respective cooperatives in comparison to any other income level (Statistical Table 1). The data shown in Statistical Table 1 indicate that cooperative membership is highest in households that have higher income. This is particularly true for Lari Alliance where 61.2 percent of the households surveyed are members of the cooperative. These households, those in the highest per-capita income quartile, receive less than 35 percent of their income from dairy farming. In contrast households within the lowest per-capita income quartile receive the largest percentage of their household income from dairy farming (Statistical Table 1).

There is a statistically significant difference in the number of cows owned by male and female-headed households within Kenya with female-headed Households owning fewer cows, though the differences are small (Statistical Table 2). Female-headed households derive significantly more of their income from dairy farming than male-headed households in the Meru Central milkshed. Female-headed Households in Lari Alliance derive 42.1 percent of their income from dairy farming compared to 31.8 and 34.8 percent in Meru Central and UCCCU, respectively (Statistical Table 2).

⁶ Statistical tables are found in Appendix A.

In general, dairy cooperative members tend to have statistically significant higher median income per person, expenditures per person, household diet diversity, asset indices, and average numbers of cow than non-members, though the differences are small for most characteristics and non-significant for median per person income in Lari Alliance (Statistical Table 3). Only in the UCCCU milkshed do cooperative members earn statistically more of their income from dairy activities than non-members.

According to information provided by Kenyan farmers in the Focus group discussions (Activity 1.3), cooperatives represent a guaranteed and stable source of income, though their prices are typically lower than of private dairies, brokers, milk traders and other types of buyers. Thus, there is a perceived trade-off between the “security” provided through cooperative membership and higher prices offered by other buyers. With the liberalization of the milk market in Kenya in 1992, dairy farmers took great advantage of the ability to sell to alternative buyers at higher prices than those offered through the cooperatives; i.e., they no longer depended only on the cooperative. Other considerations that can “tip the balance” in terms of where farmers choose to sell include convenience of collection times and locations, payment methods (e.g., type and timing), trust between the farmer and buyer, and whether there is good access to/availability of inputs and services typically provided by cooperatives.

Data collected during Activity 1.1, supported by focus groups discussions in Activity 1.3, show that the primary reasons stated by farmers for choosing where to sell milk include; higher prices, accessibility, timely payments, convenient collection times, input services, and either stable prices or the ability to sell excess milk (some cooperatives use quotas during times of high milk production, leaving farmers with excess). Only in Uganda did ‘input services’ not rank among the top reasons, indicative of the lack of these services provided by cooperatives in the UCCCU milkshed. In both Lari Alliance and Meru Central regions, 54.2 and 65.9 percent of farmers, respectively, reported input services as justification for selling their milk to a cooperative. In contrast, only 6.6 percent of farmers in UCCCU milkshed justified selling their milk to the cooperative for this reason.

Timely payments ranked highest averaged across all types of buyers, though the importance of specific milk buyers in terms of providing the most timely payments varied by location. In Kenya, more than 50 percent of farmers considered milk buyers to provide sufficiently timely payments, followed closely by hotels/restaurants. In Uganda, cooperatives and private dairies were considered by more farmers to provide the most timely payments (66 and 69.2 percent, respectively). Over 70 percent of all farmers surveyed reported the highest prices coming from institutional buyers while less than 10 percent of all farmers reported cooperatives as providing high prices.

Discussions with focus groups revealed a wide variety and severity of complaints regarding payments made through cooperatives. Delay in payments was a fairly common complaint, though it seemed the specific cooperatives mentioned had made great improvements along those lines. One advantage of cooperative membership, at least for some, appears to be the relationship it provides with local banks. Members both like and dislike this relationship, depending on the level of trust they felt with their banks, however, it also appears that by having milk payments paid directly to a bank; members can more easily obtain loans, as the cooperative serves as their guarantor. Those members with a less favorable impression of their banks reported a high level of deductions as criticism.

The relative importance of reasons why farmers choose not to join a dairy coop differs slightly between Kenya and Uganda. Price appears to be more important in deterring coop

membership in Kenya (particularly in Meru Central), than in Uganda. Dairy farmers in Kenya may feel they have significant choice about where to sell their milk based on price due to the availability of open markets and plentiful buyers. Over 37 percent of farmers in Lari Alliance and 66 percent in Meru Central indicated price was a determining factor for not becoming a coop member. Less than 34 percent of farmers in Uganda considered it sufficient justification for not becoming a member. The main reason farmers in Uganda cited for not becoming a member was lack of production.

A higher percentage of farmers from Lari Alliance and Meru Central also cited poor services as a major reason for not joining a coop (42.6 and 42.9 percent, respectively), whereas only 28.1 percent of farmers from UCCCU thought it reason enough not to join. Given the lack of services currently offered by cooperative in the UCCCU milkshed, neither access to such services nor their quality serve as a strong deterrent or motivating factor for dairy farmers there. Focus groups with non-members other reasons for not joining a cooperative, such as; inaccuracy of weighing machines, the falsification of records for quantity (cooperative recording less than producer measured) and/or quality (accusing farmers of low quality milk) and unexplained return of milk (common to both cooperative and other buyers). Improvements in cooperative management were noted where applicable.



Milk cans, Uganda. Photo by David Neubert.

III. Phase Two: Knowledge Capture

Activity 2.1: Develop Learning Platform

No activity to report.

Activities 2.2: Leverage and Develop Tools and Resources

Activities 2.3: Promote Innovative Technologies and Services

No activity to report. These activities are scheduled for Year 2 and will be based on the outcome of the validation workshops as well as interaction with other key public and private sector partners in East Africa who are also evaluating and assessing business development in the dairy sector as it relates to economic development and improving food security.

Activity 2.4: Engage with Members of the Learning Alliance

Continue to identify new partners, no specific activity to date. Engage potential members for the Learning Alliance (IDEA). Nearly 25 organizations (16 confirmed) have expressed interest in participating in the alliance. Project staff will engage these and other partners to identify value of membership in IDEA, expectations of membership, and clarity of short, medium and long-term objectives. The first step in this activity will be to develop a business plan for the Learning Alliance.

IV. Phase Three: Knowledge Sharing

No activities scheduled for Year 1.

V. Phase Four: Knowledge Application

Activity 4.1: Individual Cooperative Evaluation and Action Planning

Action planning with each cooperative partners is scheduled for July 2011.

Activity 4.2: Increasing the Competitiveness of Integrated Cooperatives

Will begin after action planning (Activity 4.1)

Activity 4.3: Implement Change Strategies with Cooperatives in Expansion Countries

No activities schedule for Year 1.

VI. Collaborative Activities (5)

There are three initiatives that are co-funded by CDP award recipients. The collective system allows for targeted research, learning, sharing and dissemination of key features of cooperative development programming that impact all CDP recipients in three key areas.

Activity 5.1: CLARITY, Activity 5.2: METRICS, Activity 5.3: IMPACT

Land O'Lakes participates in the CLARITY and IMPACT working groups, no specific program activity to date. The timeline for the collaborative work with ACDI/VOCA will be established in July 2011.

APPENDICES

Appendix A: Statistical Tables

Table 1: Selected characteristics of households by quartile of household income per capita

	Per-capita income quartiles				Total sample
	Lowest	2	3	Highest	
Lari Alliance					
Median income/person (USD)	15.21	35.72*	63.54*	158.50*	48.44
Median income/person (PPP)	31.20	73.26*	130.3*	325.12*	99.36
Median expenditure/person (PPP)	35.10	49.15*	68.80*	121.79*	61.54
Mean HH diet diversity score	6.4	7.1*	7.3*	7.7*	7.1
Median asset index	330.0	350.0*	425.0*	480.0*	390.0
Median number cows	1.0	2.0*	2.0*	2.0*	2.0
Mean number cows	1.5	1.9*	2.3*	3.6*	2.3
Mean % dairy income	45.2	44.5	40.6*	32.9*	40.6
% Coop members	38.0	47.3*	54.6*	61.2*	50.9
Meru Central					
Median income/person (USD)	15.25	34.95*	62.29*	139.24*	48.22
Median income/person (PPP)	31.28	71.69*	127.78*	285.61*	98.92
Median expenditure/person (PPP)	43.59	47.57*	69.23*	111.75*	64.10
Mean HH diet diversity score	6.6	7.4*	7.6*	7.8*	7.4
Median asset index	330.0	360.0*	410.0*	540.0*	390.0
Median number cows	1.0	1.0*	1.0*	2.0*	1.0
Mean number cows	1.4	1.7*	1.6*	2.1*	1.7
Mean % dairy income	35.2	31.2*	26.8*	19.1*	27.9
% Coop members	48.3	50.8*	55.6*	56.0*	52.7
UCCCU					
Median income/person (USD)	7.87	24.29*	50.18*	124.26*	37.99
Median income/person (PPP)	22.76	70.21*	145.04*	359.16*	109.82
Median expenditure/person (PPP)	39.87	93.71*	133.25*	204.80*	110.55
Mean HH diet diversity score	5.1	5.3*	5.8*	6.4*	5.6
Median asset index	350.0	450.0*	770.0*	1360.0*	610.0
Median number cows	7.0	10.0*	15.0*	30.0*	13.0
Mean number cows	14.7	20.4*	25.3*	47.5*	27.0
Mean % dairy income	42.1	36.4*	34.8*	33.5*	36.3
% Coop members	38.2	50.5*	56.9*	59.8*	51.4

Notes: market exchange rates: 80 KSH/USD 2350, USH/USD. PPP rates: 39 KSH/USD, 813 USH/USD

* Mean/median value different from lowest quartile at 0.10 significance level

Table 2: Selected characteristics of households by sex of HH head

	Sex of HH head		All Farmers
	Male	Female	
Lari Alliance			
Median income/person (USD)	51.66	38.75*	48.44
Median income/person (PPP)	105.96	79.49*	99.36
Median expenditure/person (PPP)	61.03	62.76	61.54
Mean HH diet diversity score	7.3	7.1*	7.2
Median asset index	410.0	310.0*	390.0
Median number cows	2.0	2.0	2.0
Mean number cows	2.5	2.1*	2.4
Mean % dairy income	40.1	42.1	40.6
% Coop members	51.1	50.5	50.9
Meru Central			
Median income/person (USD)	50.00	44.61*	48.22
Median income/person (PPP)	102.56	91.51*	98.92
Median expenditure/person (PPP)	64.62	59.62	64.10
Mean HH diet diversity score	7.6	7.3*	7.6
Median asset index	410.0	330.0*	400.0
Median number cows	1.0	1.0	1.0
Mean number cows	1.8	1.6*	1.8
Mean % dairy income	27.0	31.8*	27.9
% Coop members	52.0	54.1	52.4
UCCCU			
Median income/person (USD)	37.73	39.70	37.99
Median income/person (PPP)	109.06	114.76	109.82
Median expenditure/person (PPP)	114.67	99.25	110.55
Mean HH diet diversity score	5.7	5.9	5.7
Median asset index	640.0	550.0*	600.0
Median number cows	14.0	14.0	14.0
Mean number cows	28.2	26.5	27.8
Mean % dairy income	36.7	34.8	36.3
% Coop members	51.9	49.0	51.4

* Mean/median value different from male-headed households at 0.10 significance level

Table 3: Selected characteristics of households by coop member/non-member

	Non-member	COOP Member	Total Sample
Lari Alliance			
Median income/person (USD)	39.8	54.8	46.9
Median income/person (PPP)	81.7	112.5*	96.2
Median expenditure/person (PPP)	50.4	75.9*	59.8
Mean HH diet diversity score	7.1	7.3*	7.2
Median asset index	370.0	420.0*	390.0
Median number cows	2.0	2.0	2.0
Mean number cows	2.0	2.7*	2.4
Mean % dairy income	39.1	40.8	39.9
Meru Central			
Median income/person (USD)	43.3	49.8*	46.8
Median income/person (PPP)	88.9	102.1*	96.2
Median expenditure/person (PPP)	57.7	69.9*	64.1
Mean HH diet diversity score	7.4	7.7*	7.2
Median asset index	380.0	410.0*	400.0
Median number cows	1.0	2.0*	1.0
Mean number cows	1.6	1.9*	1.8
Mean % dairy income	39.1	40.8	39.9
UCCCU			
Median income/person (USD)	27.7	41.2*	35.0
Median income/person (PPP)	80.0	119.1*	101.0
Median expenditure/person (PPP)	85.0	131.6*	106.3
Mean HH diet diversity score	5.5	5.8*	5.7
Median asset index	500.0	930.0*	600.0
Median number cows	10.0	20.0*	14.0
Mean number cows	21.7	33.6*	27.8
Mean % dairy income	32.9	39.0*	36.0

* Mean/median value different from male-headed households at 0.10 significance level

Appendix B: Focus Group Discussions (From Activity 1.3)

LAND O'LAKES Kenya and Uganda

Cooperatives Development Program

Topical Outlines for Data Collection

Focus Group Discussions

Cooperative _____ Milk sheds _____

Facilitator _____ Recorder _____

Type of FGD _____

of people in group discussion: _____ Date _____

We will collect qualitative information in 4 primary cooperative communities in each of the three milk sheds of UCCCU Uganda and Lari/Limuru and Meru in Kenya. There will be four Focus Group (FG) discussions in each qualitative sample site, configured to include:

- Two member FGDs and 2 non-member FGDs
- Two male and 2 female FGDs
- Two FGDs with relative well-to-do farmers, two with poorer farmers

The configuration of each FGD will differ by site. The schedule of qualitative activities is documented elsewhere. Each FGD will include approximately 6-10 members each.

Four survey teams will conduct each group discussion; each FGD team consists of one facilitator and one recorder. It is important that a female member of the team facilitates the Women's group and a male member of the team facilitates the Men's group.

Begin the discussion by introducing yourselves and FGD participants and then proceeding through the purpose of the study. We are studying farmer perceptions of dairy farming, production and marketing systems, and the relationship of farmers to dairy cooperatives within the milk shed. Explain that the discussion will take about two hours. It is important that FGD participants understand this discussion to be confidential; nobody's name will be used as a quote or within a report.

What follows is not a list of formal interview questions, but an outline to guide small group discussions. It is not necessary to stick strictly to the questions in the order that is proposed below. The conversation and discussion during the FGD may move between topics, so that some topics outlined later in the Topical Outline may be covered earlier in the discussion. It is not necessary or advisable to repeat questions already covered in the discussion; it is however

essential that all of the topics outlined below be covered during the FGD. It is therefore essential that all FGD facilitators thoroughly learn and understand the contours of the FGD Topical Outline instruments.

Two Topical Outlines follow. One is for dairy cooperative member farmers. One is for non-members. Discussions with FGDs will be organized around the following general topical areas and associated questions:

TOPICAL OUTLINE 1: DAIRY COOP MEMBERS

- **Dairy production**

- Why are cattle important to you? (Probe)
 - How has cattle use changed in the last 10 years?
- How has the dairy production process changed in past 5-6 years?
 - Why?
 - What has contributed to these changes?
 - Probe for: How have AI, feed, fodder use and other services changed in the past five years?
- What are major constraints to increasing dairy production today?
 - Why? (Probe)
- How are you managing or handling these constraints?
 - What more can be done to improve dairy production?

- **Dairy marketing**

- How have milk sales changed in the past 5-6 years?
 - Why?
 - What has contributed to these changes?
 - (Probe: changes in volumes, types of buyers, price trends)?
- What are major constraints or challenges to milk marketing?
 - Why? (Probe)
- Are you satisfied with your current milk marketing arrangements?
 - Why or why not?
- What more can be done to improve milk marketing?

- **Household Decision Making**

- How are decisions made about selling milk in your HH? Who decides?
- How are decisions made about -- purchasing inputs?
 - Production practices (herd size and type, AI use, feeding practices, health management)?
 - How do you decide to adopt new practices, use new technology? Who helps you to make these decisions?
- Who in household is responsible for labor (production & marketing)?
 - Roles of men/women/children/non-family/hired labor

- **Coop Membership**

- How long have you been member of the coop? (each FGD member)
- Tell us about your experience at this coop.
- Describe important changes in the coop since you've joined.
 - What is the significance of these changes
- Why do farmers decide to join the coop?
 - What is it about the coop that keeps you here as a member?
- Why would people think about leaving the coop?
- What changes would you like to see in the coop?

- **Coop Services & Inputs**

- What are the most important services & inputs offered by the coop?
 - Which ones do you take advantage of? Why?
 - Are there services/inputs you don't take advantage of? Why?
 - Are you satisfied? Why or why not?
- Do you get any of your dairy inputs & services from sources other than the coop? If so, why?
 - (Probe: access, quality, cost, trust, reliability)
 - Are you satisfied? Why or why not?
- As a member of the coop, are you aware of check-off (deductions) options?
 - What are the options? Do you use them?
 - Are you satisfied? Why or why not?

- **Coop Decision Process**

- Do you feel you have a voice in how decisions are made in the coop?

- **Dairy Information**

- What are your sources on dairy information? (from parents/relatives, community members, input providers, cooperative, newspapers, school, training, posters, radio etc.)
- What are your most trusted information sources? Where do you go for help? Why?

TOPICAL OUTLINE 2: DAIRY NON-COOP MEMBERS

• Dairy production

- Why are cattle important to you? Probe
 - How has cattle use changed in the last 10 years?
- How has the dairy production process changed in past 5-6 years?
 - Why?
 - What has contributed to these changes?
 - Probe for: How have AI, feed, fodder use and other services changed in the past five years?
- What are major constraints to increasing dairy production today?
 - Why? (Probe)
- How are you managing or handling these constraints?
 - What more can be done to improve dairy production?

○ Dairy marketing

- How have milk sales changed in the past 5-6 years?
 - Why?
 - What has contributed to these changes?
 - (Probe: changes in volumes, types of buyers, price trends)?
- What are major constraints or challenges to milk marketing?
 - Why? (Probe)
- Are you satisfied with your current milk marketing arrangements?
 - Why or why not?
- What more can be done to improve milk marketing?

○ Household Decision Making

- How are decisions made about selling milk in your HH? Who decides?
- How are decisions made about -- purchasing inputs?
 - Production practices (herd size and type, AI use, feeding practices, health management)?
 - How do you decide to adopt new practices, use new technology? Who helps you to make these decisions?
- Who in household is responsible for labor (production & marketing)?
 - Roles of men/women/children/non-family/hired labor

Non-Coop membership

- Why do people decide to join a dairy coop or decide not to join?
- Have you ever been a member of a dairy coop? (individual)
 - If yes, why did you leave the coop?
- Please talk about important changes in the coop that you are aware of.

Services & Inputs

- Where do you get dairy inputs?

- Why do you use these sources for your dairy inputs?
- Where do you get dairy services?
- Why do you use these sources for your dairy services?
- Are you aware of inputs and services offered by the dairy coop?
 - What are they?
 - Do you access them? Why or why not?

Marketing

- How do people decide to whom they will sell their milk? (by season, morning and evening production) Please probe

○ **Dairy Information**

- What are your sources on dairy information? (from parents/relatives, community members, input providers, cooperative, newspapers, school, training, posters, radio etc.)
- What are your most trusted information sources? Where do you go for help? Why?

Appendix C: Venn Diagram Instruction (From Activity 1.3)

Venn Diagrams

The Venn Diagram is a popular and effective tool for encouraging participation. A set of circles, each representing a group or institution, is selected or drawn and then arranged to show the relationships between these institutions and groups.

Materials needed

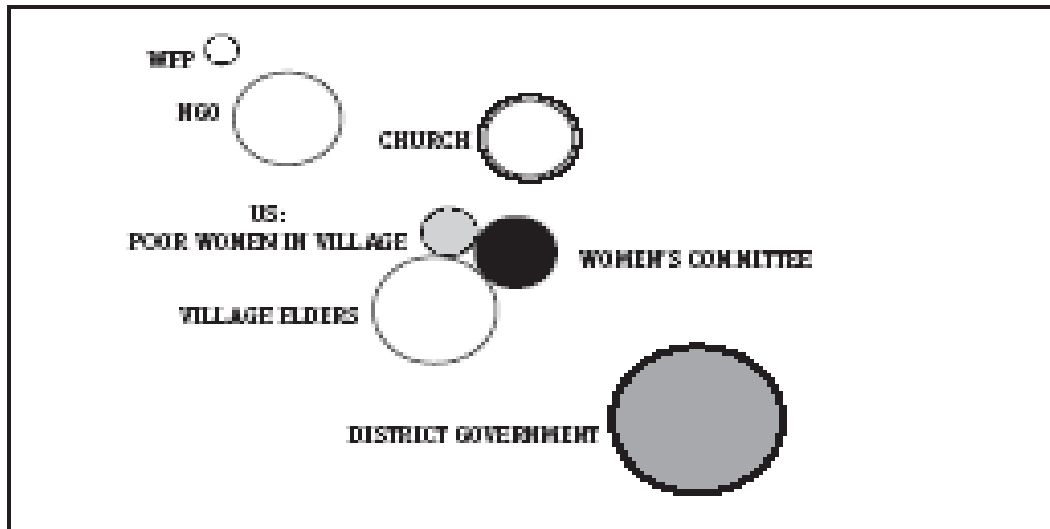
- Large sheets of paper, scissors, marker pens
- Pre-cut circles of three sizes

Steps for producing a Venn Diagram:

1. Describe the purpose of the Venn Diagram, which is to show the relationships of the focus group members to various groups and organizations. Explain:
 - The circle in the center represents the members of the focus groups (e.g. women, members of cooperatives, small dairy farmers).
 - The size of the circle represents the relative influence of the group or organization within the community.
 - The distance of the group/organization represents the degree of trust that members of the focus group have for that that group/organization.
2. Ask participants to list all the groups/institutions that the members of the focus group have any interactions with.
3. Participants then select a circle to represent each institution. An institution with a high level of influence on members of the group will be assigned a large circle, and a less influential institution a smaller circle.
4. Participants then draw or choose a circle representing members of their focus group and place this in the center. This can be done on a sheet of large paper or on any flat surface where everyone can see it.
5. The distance of the circle from the focus group indicates the level of trust that members have in that institution. Those with a high level of trust are placed close to the focus group, and those with less trust are placed further away.
6. The group should move the circles around until agreement is reached.
7. After placing the circles, the group will place arrows connecting the institutions to the focus groups. These arrows indicate the level of interaction between the focus group members and the institution. A thick line represents a high level of interaction, and a thin line represents a low level of interaction. Arrows on the lines point the direction of interaction. The lines should have arrows pointing the direction of interaction. For the lines from the focus group to schools might show a very heavy line from the school the focus group members, showing the influence of the school on the education of children in the households. There might be a very light line (or perhaps now line at all) depicting the level of influence that the households in the focus group have on the school.
8. After completing this exercise, the group will construct a second Venn Diagram, using the same procedures described above. The difference is the second diagram will focus only on

organizations/groups that are related to dairy. Instruct the group to consider the following types of interaction: access to inputs, services, information, milk buyers.

Figure 1: Venn Diagram Made by a Group of Women in the Community



The poor women who produced this diagram said that the community elders and the women's committee (which had previously been formed to improve the health of women and children) were the closest groups to them. The community elders were seen as being more powerful than the women's group. WFP, on the other hand, was perceived as distant and not very powerful.

In the analysis it was noted that, had WFP and its partners been working effectively together, they may have been perceived as being closer to each other and closer to the group of poor, marginalized women.

Appendix D: Household Income Pie Instructions (From Activity 1.3)

PROPORTIONAL HOUSEHOLD INCOME PIE

The Household Income Pie is a standard tool for determining where households get the income they need to support the members of the household and their livelihood strategies. Supplementing the focus group discussions (FGD), this is an essential tool of the Land O'Lakes CDP study, serving to determine livelihood strategy trends and current income earning priorities, including dairy as well as other potential income earning sources.

Facilitators will attempt to produce three Household Income Pies:

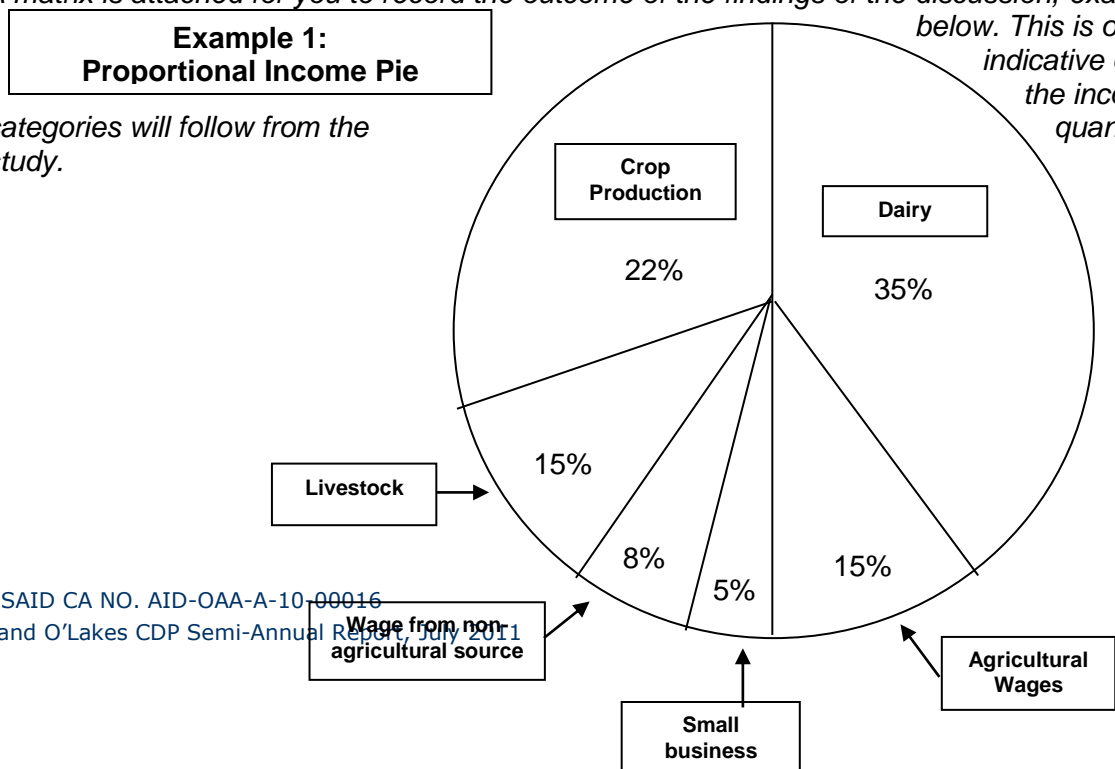
- One for this year during the rainy season
- One for this year during the dry season
- One for five years ago (during the rainy season).

We will facilitate the Household Income Pies as an FGD during the afternoon session. Two qualitative teams will conduct Household Income Pie sessions at each site. The configuration will include non-member, male/female, and relatively wealthy/poor farmers, which will differ by site. Please refer to the FGD schedule by site.

During the discussion the group will:

- 1) Identify the most important livelihood strategies for households in the community through brainstorming;
- 2) Write the livelihood strategies (income sources) on flipchart paper in a table form; and
- 3) Determine the relative importance of each strategy through proportional piling. Bring sufficient amounts of beans or maize kernels, etc., for this exercise. Use the beans to allow FGD participants to assign values to each of the livelihood strategies. We should try to reach as much consensus as possible.

A matrix is attached for you to record the outcome of the findings of the discussion, example below. This is only an indicative example; the income quantitative categories will follow from the study.



Example 2. Income Pie Matrix

Livelihood strategy	Proportion of HH reliance on the livelihood strategy (FG consensus)
Dairy production	
Other livestock & livestock products	
Crop production	
Sale of firewood or collected grass	
Small commercial activities	
Artisanal/ handcrafts (e.g., mats, baskets)	
Service work (teacher, etc.)	
Wage or in kind employment from within community (member of HH)	
Wage or in kind employment from outside community (member of HH)	
Remittances from relatives	
Total	100

PROPORTIONAL HOUSEHOLD DAIRY MILK MARKETING PIE

After going through the Income Pie exercises, facilitators will lead the farmer FGD in another exercise to establish trends in milk marketing. The idea is to discover trends in how dairy farmers in this milk shed and primary cooperative area market their milk today in the rainy and dry seasons compared to the past.

As was the case outlined above, facilitators will attempt to produce three dairy Milk Marketing Pies:

- One for this year during the rainy season
- One for this year during the dry season
- One for five years ago (during the rainy season).

The facilitation process for Milk Marketing Pies is exactly that of the Household Income Pies described above. The desired outputs are similar as well:

Example 3. Milk Marketing Matrix

Livelihood Strategy	Proportion of HH reliance on the marketing strategy (FG consensus)
Primary Dairy Cooperative	
Individual buyers	
Milk trader – middleman	
Dairy company	
Restaurant or hotel	
Other cooperative	
Other	
Total	100

Appendix E: Household Questionnaire (Activity 1.1)

Questionnaire # _____

Q.1 SCREENING QUESTIONS

Q.2 Is the HH from the list of active members of the [PRIMARY COOPERATIVE]?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 2 IS 1, THEN SKIP TO QUESTION 5]

Q.3 Does the household have any cows?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 3 IS 2, THEN SKIP TO QUESTION 165]

Q.4 Has the household sold any milk to [PRIMARY SOCIETY] in the last 12 months?

Yes 1
No 2

[IF THE ANSWER IS 1, THEN SKIP TO QUESTION 165]

Q.5 IDENTIFICATION VARIABLES

Q.6 Interview Date - MONTH

January 1
February 2

Q.7 Interview Date - DAY

..... ____

Q.8 Federated Cooperative/Alliance

Lari Alliance 1
Meru Central Cooperative Union 2
UCCCU 3

[IF THE ANSWER TO QUESTION 8 IS NOT 1, THEN SKIP TO QUESTION 10]

Q.9 Lari Primary Societies

Kiriita 1
Gatamaiyu 2
Kamahia 3
Lari 4

[IF THE ANSWER TO QUESTION 8 IS NOT 2, THEN SKIP TO QUESTION 12]

Q.10 Meru Primary Societies

Abogeta	1
Baranga	2
Buuri	3
Chure	4
Githongo	5
Igoke	6
Kanyakine	7
Kigane	8
MORE	9

[IF THE ANSWER TO QUESTION 10 IS NOT 9, THEN SKIP TO QUESTION 12]

Q.11 Meru Primary Societies - Continued

Kithoka	1
Kithurine	2
Naari	3
Ndamene	4
Nkuene	5
Nthuguru	6
Nyaki	7
Ruiga	8
Uruku	9

[IF THE ANSWER TO QUESTION 8 IS NOT 3, THEN SKIP TO QUESTION 13]

Q.12 UCCCU Primary Society

.....

Q.13 Interview team code

A ...	1
B ...	2
C ...	3
D ...	4

Q.14 Interviewer code

1 ...	1
2 ...	2
3 ...	3
4 ...	4
5 ...	5
6 ...	6

Q.15 HH Number

1 ...	1
2 ...	2
3 ...	3
4 ...	4
5 ...	5
6 ...	6
7 ...	7
8 ...	8
9 ...	9

Q.16 HOUSEHOLD CHARACTERISTICS

Q.17 Number of People in HH

.....

Q.18 Age of HH Head

.....

Q.19 Sex of HH Head

Male 1
Female 2

Q.20 Primary source of HH income

Work on own farm (crops) 1
Dairy 2
Other livestock 3
Hired agricultural/livestock laborer 4
Other unskilled labor 5
Skilled labor/professional 6
Teacher 7
Merchant/Businessman 8
Other 9

Q.21 Other sources of HH income (up to 3 responses)

Work on own farm (crops) 1
Dairy 2
Other livestock 3
Hired agricultural/livestock laborer 4
Other unskilled labor 5
Skilled labor/professional 6
Teacher 7
Merchant/Businessman 8
Other 9

Q.22 How many hours per day do HH members work in dairy? (None = 0)

.....

Q.23 Who in HH is primarily responsible for making decisions about dairy activities?

Household head 1
Spouse 2
Son 3
Daughter 4
Worker 5
Other 6

Q.24 Who in the household spends the most time in dairy activities?

Household head 1
Spouse 2
Son 3
Daughter 4
Worker 5
Other 6

Q.25 Education of HH Head

No Schooling 1
Some Primary Schooling 2

Completed Primary Schooling	3
Some Secondary Schooling	4
Completed Secondary Schooling	5
Post Secondary Schooling	6
Can read/write (No formal Schooling)	7
Adult Education	8
Madrassa	9

Q.26 DAIRY COWS, PRODUCTION AND SALES

Q.27 How many cows (calved at least once) do you have?

Local
 Exotic (CROSS)
 Exotic (PURE)

[IF THE ANSWER IS NOT 1-999, AND...]

[IF THE ANSWER TO SUB-QUESTION 2 OF QUESTION 27 IS 0, AND...]
 [IF THE ANSWER TO SUB-QUESTION 3 OF QUESTION 27 IS 0, THEN SKIP TO QUESTION 29]

Q.28 What types of exotic breeds of milk cows do you have?

Holstein-Friesian 1
 Ayershire 2
 Jersey 3
 Guernsey 4
 Other 5
 Don't Know 6
 None 7

Q.29 How many cows are currently being milked?

.....

Q.30 How many heifers do you have?

.....

Q.31 How many calves do you have?

.....

Q.32 Current total milk production in the MORNING from ALL cows producing milk (Don't know=99)

liters

Q.33 Current total milk production in the EVENING from ALL cows producing milk (Don't know = 99)

Liters

Q.34 NORMAL daily total production of milk (from all cows in your herd) during the DRY SEASON including both morning and evening collections (Don't Know = 99)

liters/day

Q.35 NORMAL daily total production of milk (from all cows in your herd) during the RAINY SEASON including both morning and evening collections (Don't Know = 99)

.....

Q.36 How has your milk production changed in the last 3 years?

Increased 1
Stayed the same 2
Decreased 3

[IF THE ANSWER TO QUESTION 36 IS NOT 1, THEN SKIP TO QUESTION 39]

Q.37 How have you improved your milk production? (Up to 3 reasons)

Increased herd size 1
Introduced more productive cows 2
Improved production of feed/fodder 3
Improved access to purchased feed 4
Improved health care of animals 5
Improved herd management 6
Other (Specify) 7

[IF THE ANSWER TO QUESTION 37 IS NOT 7, THEN SKIP TO QUESTION 39]

Q.38 OTHER

[IF THE ANSWER TO QUESTION 36 IS NOT 3, THEN SKIP TO QUESTION 41]

Q.39 Why has your milk production decreased? (Up to 3 reasons)

Changed to other more profitable activities 1
Illness/Death of cattle 2
Illness/Death of family members 3
Higher cost of inputs 4
Drought/lack of access to water 5
Response to lower milk price 6
Reduced herd size 7
Other (specify) 8

[IF THE ANSWER TO QUESTION 39 IS NOT 8, THEN SKIP TO QUESTION 41]

Q.40 OTHER

Q.41 Have you sold any milk within the last 12 months

Yes 1
No 2

[IF THE ANSWER TO QUESTION 41 IS 1, THEN SKIP TO QUESTION 43]

Q.42 Why not? (Up to 3 reasons)

Do not produce enough milk	1
Price too low	2
No buyers available	3
Not interested to sell (produce for home consumption only)	4
Other	5

[IF THE ANSWER TO QUESTION 41 IS 2, THEN SKIP TO QUESTION 72]

Q.43 How many types of buyers do you regularly sell milk to?

1	1
2	2
3	3
4	4
5 or more	5

Q.44 What is your MOST IMPORTANT type of milk buyer? (Count individual customers as one category)

Individual Customer(s)	1
Milk traders (middlemen, brokers)	2
Primary cooperative	3
Dairy company	4
Restaurant/Hotel	5
Institution (school/hospital)	6
Other	7

Q.45 How much milk to you sell to this buyer? (Liters per day)

.....

Q.46 Sales price per liter to this buyer (Shillings)

.....

Q.47 Why do you sell to this type of buyer? (up to 3 reasons)

High Price	1
Timely Payments	2
Stable Price	3
Easily accessible (short distance)	4
Other inputs/services provided by this buyer	5
Can sell excess	6
Convenient collection time	7
Buyer does not check quality	8
No other option	9
Other	10

[IF THE ANSWER TO QUESTION 47 IS NOT 10, THEN SKIP TO QUESTION 49]

Q.48 OTHER

[IF THE ANSWER TO QUESTION 43 IS 1, THEN SKIP TO QUESTION 64]

Q.49 What is your 2ND MOST IMPORTANT type of milk buyer?

Individual Customer(s)	1
Milk traders (middlemen, brokers)	2
Primary cooperative	3
Dairy company	4
Restaurant/Hotel	5
Institution (school/hospital)	6
Other	7

Q.50 How much milk do you sell to this type of buyer? (Liters per day)

.....

Q.51 Sales price per liter to this buyer (Shillings)

.....

Q.52 Why do you sell to this buyer? (up to 3 reasons)

High Price	1
Timely Payments	2
Stable Price	3
Easily accessible (short distance)	4
Other inputs/services provided by this buyer	5
Can sell excess	6
Convenient collection time	7
Buyer does not check quality	8
No other option	9
Other	10

[IF THE ANSWER TO QUESTION 52 IS NOT 10, THEN SKIP TO QUESTION 54]

Q.53 OTHER

[IF THE ANSWER TO QUESTION 43 IS 2, THEN SKIP TO QUESTION 64]

Q.54 What is your 3RD MOST IMPORTANT type of milk buyer?

Individual Customer(s)	1
Milk traders (middlemen, brokers)	2
Primary cooperative	3
Dairy company	4
Restaurant/Hotel	5
Institution (school/hospital)	6
Other	7

Q.55 How much milk do you sell to this type of buyer? (Liters per day)

.....

Q.56 Sales price per liter to this buyer (Shillings)

.....

Q.57 Why do you sell to this type of buyer? (up to 3 reasons)

High Price	1
Timely Payments	2
Stable Price	3
Easily accessible (short distance)	4
Other inputs/services provided by this buyer	5

Can sell excess	6
Convenient collection time	7
Buyer does not check quality	8
No other option	9
Other	10

[IF THE ANSWER TO QUESTION 57 IS NOT 10, THEN SKIP TO QUESTION 59]

Q.58 OTHER

[IF THE ANSWER TO QUESTION 43 IS 3, THEN SKIP TO QUESTION 64]

Q.59 What is your 4TH MOST IMPORTANT type of milk buyer?

Individual Customer(s)	1
Milk traders (middlemen, brokers)	2
Primary cooperative	3
Dairy company	4
Restaurant/Hotel	5
Institution (school/hospital)	6
Other	7

Q.60 How much milk do you sell to this type of buyer? (Liters per day)

.....

Q.61 Sales price per liter to this buyer (Shillings)

.....

Q.62 Why do you sell to this type of buyer? (up to 3 reasons)

High Price	1
Timely Payments	2
Stable Price	3
Easily accessible (short distance)	4
Other inputs/services provided by this buyer	5
Can sell excess	6
Convenient collection time	7
Buyer does not check quality	8
No other option	9
Other	10

[IF THE ANSWER TO QUESTION 62 IS NOT 10, THEN SKIP TO QUESTION 64]

Q.63 OTHER

Q.64 Estimate the average daily sales in a NORMAL year in the DRY SEASON (Liters per day)
(Don't know=99)

.....

Q.65 Estimate the average daily sales in a NORMAL year in the RAINY SEASON (Liters per day)
(Don't know=99)

.....
Q.66 Do you ever have difficulties selling all your milk?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 66 IS 2, THEN SKIP TO QUESTION 69]

Q.67 What kinds of difficulties (up to 3 answers)

Buyers won't buy all milk 1
Access/transport problems 2
Nobody to transport 3
Rejections because of quality 4
Low/unstable price 5
No buyers available 6
Other (specify) 7

[IF THE ANSWER TO QUESTION 67 IS NOT 7, THEN SKIP TO QUESTION 69]

Q.68 OTHER

Q.69 In the last 12 months have you switched to different milk buyers?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 69 IS 2, THEN SKIP TO QUESTION 72]

Q.70 If yes, why? (up to 3 reasons)

Better Price 1
Want more buyers 2
Buyer who will take larger quantity 3
More reliable buyer 4
Previous buyers stopped buying 5
Other (Specify) 6

[IF THE ANSWER TO QUESTION 70 IS NOT 6, THEN SKIP TO QUESTION 72]

Q.71 OTHER

Q.72 Is any of your milk production consumed by the household?

Yes 1
No 2

[IF THE ANSWER IS 2, THEN SKIP TO QUESTION 77]

Q.73 How much milk does your household consume per day at this time? (don't know = 99)

Liters/day _____

[IF THE ANSWER IS 0, THEN SKIP TO QUESTION 77]

Q.74 Do you have any children under 5 years old in your household?

yes 1
no 2

[IF THE ANSWER IS 2, THEN SKIP TO QUESTION 77]

Q.75 How many children under 5 reside in your household?

boys under 5 _
girls under 5 _

Q.76 How much milk per day do your under 5 children consume?

boys under 5 _____
girls under 5 _____

Q.77 COOPERATIVE MEMBERSHIP

Q.78 Are you a member of [PRIMARY COOPERATIVE]?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 78 IS 1, THEN SKIP TO QUESTION 81]

Q.79 Why are you not a member of [PRIMARY COOPERATIVE]? (up to 3 responses)

Too Expensive (membership fees) 1
Don't produce enough milk 2
Other buyers offer higher price 3
Conflicts with cooperative leadership 4
Poor services provided by cooperative 5
Long distance to collection point 6
Other (specify) 7

[IF THE ANSWER TO QUESTION 79 IS NOT 7, THEN SKIP TO QUESTION 116]

Q.80 OTHER

[IF THE ANSWER TO QUESTION 78 IS 2, THEN SKIP TO QUESTION 123]

Q.81 What services are offered by [primary cooperative]? (up to 14 responses)

Milk Collection at convenient location 1
Animal health Services 2
Provides dairy inputs 3
Provides crop inputs 4
Provides AI services 5
savings and credit 6
Provides credit for inputs 7
Provides credit for AI 8
Provides health insurance 9

Provides training	10
Provides cross-cooperative visits	11
consumer stores	12
school fees	13
milk transport services	14
Don't know	15

Q.82 Which of these services have you used? (up to 14 responses)

Milk Collection at convenient location	1
Animal health Services	2
dairy inputs	3
crop inputs	4
AI services	5
savings and credit	6
Credit for inputs	7
AI on credit	8
Health insurance	9
Training	10
Provides cross-cooperative visits	11
consumer stores	12
school fees	13
milk transport services	14
None	15

[IF THE ANSWER TO QUESTION 81 IS NOT 1, THEN SKIP TO QUESTION 84]

Q.83 How important is milk collection at convenient location?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 81 IS NOT 2, THEN SKIP TO QUESTION 85]

Q.84 How important is provision of animal health services?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 81 IS NOT 3, THEN SKIP TO QUESTION 86]

Q.85 How important is the provision of dairy inputs?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 81 IS NOT 4, THEN SKIP TO QUESTION 87]

Q.86 How important is the provision of crops inputs?

not very important	1
somewhat important	2
important	3
very important	4

[IF THE ANSWER TO QUESTION 81 IS NOT 5, THEN SKIP TO QUESTION 88]

Q.87 How important is the provision of AI?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 6, THEN SKIP TO QUESTION 89]

Q.88 How important are the savings and loan services?

not very important 1
somewhat important 2
important 3
very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 7, THEN SKIP TO QUESTION 90]

Q.89 How important is provision of credit for inputs?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 8, THEN SKIP TO QUESTION 91]

Q.90 How important is provision of credit for AI?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 9, THEN SKIP TO QUESTION 92]

Q.91 How important provision of health insurance?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 10, THEN SKIP TO QUESTION 93]

Q.92 How important provision of training?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 11, THEN SKIP TO QUESTION 94]

Q.93 How important are the cross-cooperative visits?

- not very important 1
- somewhat important 2
- important 3
- very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 12, THEN SKIP TO QUESTION 95]

Q.94 How important are the consumer stores?

- not very important 1
- somewhat important 2
- important 3
- very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 13, THEN SKIP TO QUESTION 96]

Q.95 How important are the school fees?

- not very important 1
- somewhat important 2
- important 3
- very important 4

[IF THE ANSWER TO QUESTION 81 IS NOT 14, THEN SKIP TO QUESTION 97]

Q.96 How important are the transport services for dairy?

- not very important 1
- somewhat important 2
- important 3
- very important 4

Q.97 What other services SHOULD the PRIMARY COOPERATIVE provide? (up to 14 responses)

- Milk Collection at convenient location 1
- Animal health Services 2
- Provides dairy inputs 3
- Provides crop inputs 4
- Provides AI services 5
- savings and credit 6
- Provides credit for inputs 7
- Provides credit for AI 8
- Provides health insurance 9
- Provides training 10
- Provides cross-cooperative visits 11
- consumer stores 12
- school fees 13
- milk transport services 14
- other (specify) 15

[IF THE ANSWER TO QUESTION 97 IS NOT 15, THEN SKIP TO QUESTION 99]

Q.98 OTHER

Q.99 What are the benefits to you of membership in the [PRIMARY COOPERATIVE]? (up to 8

responses)

High milk price	1
Timely payment	2
Convenient payment	3
Stable prices over the year	4
Access to inputs on credit	5
Access to loans	6
Access to training	7
Exchange visits	8
[COOP] buys milk in rainy season	9
Other (specify)	10
None	11
Bonus/dividend	12

[IF THE ANSWER TO QUESTION 99 IS NOT 10, THEN SKIP TO QUESTION 101]

Q.100 OTHER

[IF THE ANSWER TO QUESTION 99 IS NOT 1, THEN SKIP TO QUESTION 102]

Q.101 How important is the high milk price?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 99 IS NOT 2, THEN SKIP TO QUESTION 103]

Q.102 How important is the timely payment?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 99 IS NOT 3, THEN SKIP TO QUESTION 104]

Q.103 How important is convenient payment?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 99 IS NOT 4, THEN SKIP TO QUESTION 105]

Q.104 How important are the stable prices over the year?

Not very important	1
Somewhat important	2
Important	3
Very important	4

[IF THE ANSWER TO QUESTION 99 IS NOT 5, THEN SKIP TO QUESTION 106]

Q.105 How important is the access to inputs on credit?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 99 IS NOT 6, THEN SKIP TO QUESTION 107]

Q.106 How important is the access to loans?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 99 IS NOT 7, THEN SKIP TO QUESTION 108]

Q.107 How important is the access to training?

Not very important 1
Somewhat important 2
Important 3
Very important 4

[IF THE ANSWER TO QUESTION 99 IS NOT 8, THEN SKIP TO QUESTION 110]

Q.108 How important are the exchange visits?

Not very important 1
Somewhat important 2
Important 3
Very important 4

Q.109 How important is [COOP] buying milk in rainy season?

Not very important 1
Somewhat important 2
Important 3
Very important 4

Q.110 Have you experienced any problems with the [COOPERATIVE]?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 110 IS 2, THEN SKIP TO QUESTION 113]

Q.111 What problems have you had with the [primary cooperative]? (up to 10 responses)

Low prices 1
Delayed payment 2
Unable to sell desired quantities (quotas) 3
Long distance to collection center 4
Inconvenient collection times 5
No evening collection 6
Testing requirements 7

Conflicts with other members or mgmt	8
Delays in collection	9
Falsification of quantities by weighing clerks	10
Other (Specify)	11

[IF THE ANSWER TO QUESTION 111 IS NOT 11, THEN SKIP TO QUESTION 113]

Q.112 OTHER

Q.113 Is the HH currently delivering milk to [primary cooperative]?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 113 IS 1, THEN SKIP TO QUESTION 116]

Q.114 Why are you not delivering milk to the [PRIMARY COOPERATIVE]? (up to 4 reasons)

Immature cows	1
Dry cows	2
Sold all cows	3
Cows died	4
Better selling price from other buyers	5
Consuming all the milk	6
[COOP] not taking milk at this time	7
Excessive delays in payments	8
No benefits to coop membership	9
Other (specify)	10

[IF THE ANSWER TO QUESTION 114 IS NOT 10, THEN SKIP TO QUESTION 116]

Q.115 OTHER

Q.116 TRAINING

Q.117 Have you received any training on dairying in the last 3 years?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 117 IS 2, THEN SKIP TO QUESTION 120]

Q.118 Which of the following kinds of training have you received? (up to 3 answers) (ASK ABOUT ALL CATEGORIES)

Improved feeding practices	1
Animal health practices	2
Animal genetics/AI	3

Herd management 4
 Record keeping/accounting 5
 Cross visits 6
 Other 7

Q.119 Which type of training has been most beneficial to you?

Improved feeding practices 1
 Animal health practices 2
 Animal genetics/AI 3
 Herd management 4
 Record keeping/accounting 5
 Cross visits 6
 Other 7

Q.120 Are there any types of training on dairying that you would like to receive in the future?

Yes 1
 No 2

[IF THE ANSWER TO QUESTION 120 IS 2, THEN SKIP TO QUESTION 123]

Q.121 What kinds of training would you like to receive? (up to 3 responses)

Improved feeding practices 1
 Animal health practices 2
 Animal genetics/AI 3
 Herd management 4
 Record keeping/accounting 5
 Cross visits 6
 Other (specify) 7

[IF THE ANSWER TO QUESTION 121 IS NOT 7, THEN SKIP TO QUESTION 123]

Q.122 OTHER

Q.123 FEED PRACTICES

Q.124 Main system for keeping cattle this year in DRY SEASON

Only grazing (free range or tethered) 1
 Mainly grazing with some stall feeding 2
 Mainly stall feeding with some grazing 3
 Only stall feeding (zero grazing) 4

Q.125 Main system for keeping cattle this year in RAINY SEASON

Only grazing (free range or tethered) 1
 Mainly grazing with some stall feeding 2
 Mainly stall feeding with some grazing 3
 Only stall feeding (zero grazing) 4

Q.126 Has your system for keeping cattle changed in last 3 years?

Yes 1

No 2

[IF THE ANSWER TO QUESTION 126 IS 2, THEN SKIP TO QUESTION 128]

Q.127 How has your system for keeping cattle changed?

Increased use of grazing 1
Decreased use of grazing 2
Adopted zero grazing 3

Q.128 DAIRY PRODUCTION COSTS

Q.129 Did you purchase any fodder in past year?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 129 IS 2, THEN SKIP TO QUESTION 132]

Q.130 Cost of fodder purchased per month (Shillings) (99 = don't know)

.....

Q.131 Number of months purchased last year

.....

Q.132 Have you fed your cows with feed concentrates in the last year?

Yes 1
No 2

[IF THE ANSWER TO QUESTION 132 IS 2, THEN SKIP TO QUESTION 136]

Q.133 What is the cost per month of concentrates you feed in the DRY SEASON? (Shillings)
(99=don't know)

.....

Q.134 What is the cost per month of the concentrates you feed in the RAINY SEASON?
(Shillings) (99 = don't know)

.....

Q.135 Where do you purchase your feed concentrates? (up to 2 responses)

[PRIMARY COOPERATIVE] 1
Union/Alliance 2
Other 3

Q.136 Did you feed animals with concentrates 3 years ago?

Yes 1

No 2

Q.137 How much did you pay for medicines and vet services last year? (Shillings)

.....

[IF THE ANSWER TO QUESTION 137 IS 0, THEN SKIP TO QUESTION 140]

Q.138 From whom did you obtain medicines, vet services? (up 3 responses)

Agrovet shop 1
Private veterinary 2
[PRIMARY COOPERATIVE] 3
Other (specify) 4

[IF THE ANSWER TO QUESTION 138 IS NOT 4, THEN SKIP TO QUESTION 140]

Q.139 OTHER

.....

Q.140 What method do you use to inseminate your cows?

Bull 1
AI 2
Both 3

Q.141 How much did you pay for AI/Bull service last year? (Shillings)

.....

[IF THE ANSWER TO QUESTION 140 IS 1, THEN SKIP TO QUESTION 144]

Q.142 Who provided AI services?

Private service provider 1
[primary cooperative] 2
Government 3
Vet 4
Other (specify) 5
Don't Know 6

[IF THE ANSWER TO QUESTION 142 IS NOT 5, THEN SKIP TO QUESTION 144]

Q.143 OTHER

.....

[IF THE ANSWER TO QUESTION 140 IS 2 OR 3, THEN SKIP TO QUESTION 146]

Q.144 Why not use AI?

Service not available 1
Too expensive 2

Not aware of benefits of AI 3
 Prefer to use bull 4
 Other (specify) 5

[IF THE ANSWER TO QUESTION 144 IS NOT 5, THEN SKIP TO QUESTION 146]

Q.145 OTHER

Q.146 Do you currently hire any monthly laborers for your dairy operations?

Yes 1
 No 2

[IF THE ANSWER TO QUESTION 146 IS 2, THEN SKIP TO QUESTION 149]

Q.147 How many monthly laborers do you currently employ?

.....

[IF THE ANSWER TO QUESTION 147 IS 0, THEN SKIP TO QUESTION 149]

Q.148 Total salaries paid to all monthly laborers? (Shillings/month)

.....

Q.149 In the past year have you hired any casual laborers for your dairy operations?

Yes 1
 No 2

[IF THE ANSWER TO QUESTION 149 IS 2, THEN SKIP TO QUESTION 152]

Q.150 How many months per year do you hire casual laborers for your dairy operations?

.....

Q.151 What is the daily wage for casual laborers? (Shillings)

.....

Q.152 HH ASSETS

Q.153 HH assets - Number owned

Radio
 Television
 Mobile Phone
 Vehicle
 Motorcycle
 Bicycle
 Solar panel

Q.154 Farm assets - Number owned

Animal cart
Shovel
Axe
Panga

Q.155 Farm assets - Number owned

Hoe
Plough
Wheelbarrow
Tractor
Spray pump
Draft animals (oxen)

Q.156 HOUSEHOLD FOOD CONSUMPTION (TO COMPUTE HH DIET DIVERSITY SCORE)

Q.157 Which of the following foods were consumed by your household yesterday? (ASK ABOUT ALL CATEGORIES)

Cereals (maize/ugali, rice, bread) 1
Roots/Tubers (cassava, sw. potato) 2
Legumes/Pulses (beans,peas) 3
Dairy Products (milk, ghee) 4
Meat/poultry/offal 5
Fish/seafood 6

Q.158 Which of the following foods were consumed by your household yesterday?

Oils/fats 1
Sugar/honey 2
Fruits 3
Eggs 4
Vegetables 5
Other 6

Q.159 HOUSEHOLD INCOME

Q.160 How much money do you consider that your household earns from the following activities per MONTH? (Shillings) (Don't know = 99)

Sales of milk/dairy products
Other farm activities (bee keeping, beer brewing, wood, charcoal, etc.)
Wages/salaries/pensions
Business activities
Other

Q.161 How much money do you consider that your household earns from the following activities LAST YEAR? (Shillings) (Don't know=99)

Livestock sales
Crop sales

Q.162 HOUSEHOLD EXPENDITURES

Q.163 How much do you consider that your household spends on the following items? (Shillings/month) (Don't know=99)

Food
 Fuel
 Education
 Transport

Q.164 How much do you consider that your household spends on the following items?
 (Shillings/month) (Don't know = 99)

Medical/health
 Loan repayment
 Electricity
 Tithes/religious offerings
 Other

Q.165 YOU HAVE REACHED THE END OF THE SURVEY, THANK YOU